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Holly Enerson  
*Dordt College*

Dallas Van Gelder  
*Dordt College*

John Olthoff  
*Dordt College*

Beth E. Doran  
*Iowa State University, [doranb@iastate.edu](mailto:doranb@iastate.edu)*

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# Impact of Drought on Northwest Iowa Beef Cow-Calf Operations

## A.S. Leaflet R2861

Holly Enerson, Undergraduate Student, Dordt College;  
Dallas Van Gelder, Undergraduate Student, Dordt College;  
John Olthoff, Professor of Agriculture, Dordt College;  
Beth Doran, Beef Program Specialist, ISU Extension and Outreach

### Summary and Implications

This project assessed the impact that the 2012 drought had on northwest Iowa cow-calf operations. A survey was mailed to 293 beef producers in seventeen northwest Iowa counties. Producers indicated that feed resources were scarce, and those who bought feed noted high prices made feed an undesirable purchase. Future plans included extensive pasture management and feed supplementation. The average pregnancy rate of the females, 93%, was not significantly affected by the drought, but heat stress on the female was perceived to affect pregnancy rate. Despite drought, 11% of the producers planned to retain open females. The majority, 75%, of the operations indicated that drought had little impact on their financial position, but 25% responded that their financial position would be poorer. To cope, some producers would sell part of the cows, sell the 2012 calves, and/or sell the 2012 replacement heifers. Other producers indicated that total or partial dispersal of the herd may be required. Rain, availability of feeds, and price of feedstuffs would dictate whether they kept or sold calves and cows.

### Introduction

Drought conditions generate a plethora of challenges for the cow-calf operation. Drought is often accompanied with high temperatures which can create heat stress. Heat stress may decrease fertility in both male and female animals. The bull's libido may be decreased. Semen quality and vitality may also be negatively impacted. In the female, high temperatures may limit the expression of estrus and conception rates. Drought may increase the incidences of abortion due to heat stress and reduce nutrients. Both the quantity and quality of feed and water may be lowered due to drought and heat. Reduced availability of feedstuffs and high prices pose many challenges for cow-calf operations. In 2012, drought conditions were prevalent in northwest Iowa (Figure 1).

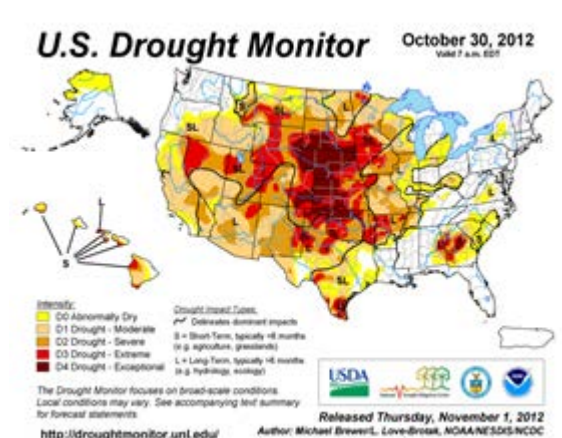


Figure 1. U.S. drought monitor.

### Materials and Methods

To determine the impact that the 2012 drought had on northwest Iowa cow-calf operations, a survey was generated containing a series of questions relating to demographics of the beef operation, feed situation, breeding and reproduction, financial impact, and future plans. This survey was mailed to 293 producers in 17 counties who had attended a previous Extension program. One-hundred-ten completed surveys were returned (38% response rate). Responses were compiled in an Excel spreadsheet, and trends were determined.

### Results and Discussion

Respondents represented operations with an average herd size of 81 head, but ranging from 5 to 225 head. Average composition of the cowherd was 21% aged cows, 24% first- or second calf heifers, and 55% middle-aged cows (Figure 2).

Producers who responded owned a total of 8938 cows. Figure 3 depicts the counties of the respondents and the percentage of the total number of cows represented in the survey results. Woodbury (15.2%) and Plymouth (15.0%) counties accounted for the largest percentage of cows in this survey.

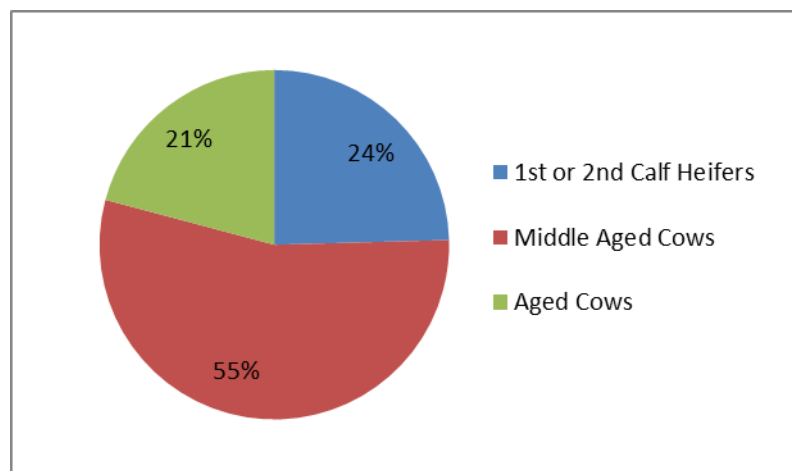
Of the 110 operations responding, 73% had crossbred herds. Thirty-three percent reported straight-bred herds. The extra 6% (above 100%) represents producers who reported having both a straight-bred and crossbred herd. Similarly, some operations managed both a registered herd and a commercial herd. Commercial herds accounted for 89% of operations. Only 13% of operations had a registered herd.

When asked about their feed supply, 58% of the producers indicated feed resources were scarce. The reason for the shortage depended upon whether they raised or

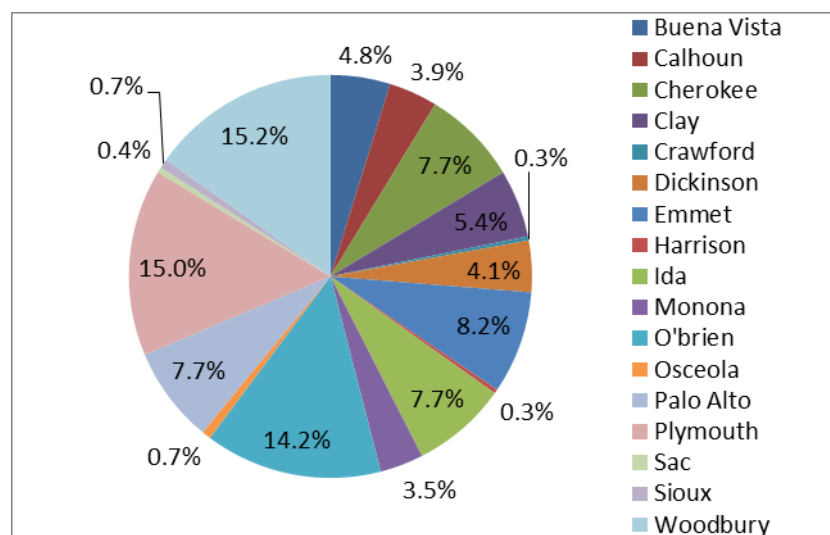
purchased their feed (Figure 4). Producers reporting feed resources as being sufficient tended to be operations that grew their own feed. If they grew their own feed and still reported a shortage, they indicated feed was scarce because of the drought. Those who bought feed noted high prices made feed an undesirable purchase.

Producers were concerned about pasture conditions for the 2013 season. They reported that pastures had been

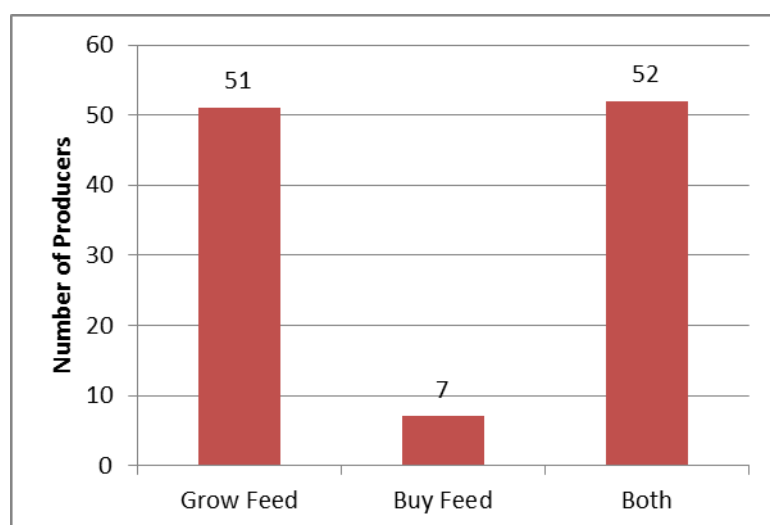
overgrazed, killed by drought, or were being diverted to crop production. Producers planned to supplement pastureland with other feeds, such as hay or distillers grains. Some planned to bale or graze CRP land.



**Figure 2. Average composition of cowherd.**



**Figure 3. Location and percentage of cows represented by the respondents.**



**Figure 4. Source of feedstuffs.**

Producers were surveyed about breeding and reproduction in their herd. Average pregnancy rate of the represented operations was 93%, which is similar to the national average for the past 10 years. However, many of the northwest Iowa operations stated that heat stress on the female in 2012 was a major factor affecting pregnancy rates (Table 1). A second factor was heat stress on the bull which impacted sperm viability. This data stresses the importance of animal observation during and following periods of heat stress. Cows should be monitored for return to estrus, and bulls should be monitored for libido. If libido is normal but cows are returning to estrus, heat stress may have affected the fertility of both the cow and bull. With drought, pregnancy checking is warranted.

Table 1. Perceived reasons for open females	
Perceived Reasons	Percent of Operations
Heat stress on female	43
Poor water quality	5
Shortage of feed	9
Poor feed quality	8
Bull not active	5
Heat stress on bull semen	29
Unsure	15
Age of cow	8

The breeding protocol of the operations responding is shown in Figure 5. Natural breeding was used by 92% of operations. AI accounted for 36%. Some producers used both protocols. For example, they used AI for their heifers and natural breeding for their cows. Of those who reported using AI as a breeding protocol, only 29% used estrus synchronization. Most cattle producers used natural breeding as a follow-up to other breeding methods they had in place. Heat associated with drought has the potential to

not only cause problems, such as open females, but also increase the number of late calving females in the subsequent year.

History reveals quite a bit about how producers cope with drought. When asked what they planned to do with bred heifers, open females, and calves born in 2012, 10% of the producers reduced their herd size (Figure 6); 93% planned to keep their bred heifers. Some did both, which accounts for total percentage greater than 100%. For example, some planned to keep their heifers, but cull older cows to reduce herd size.

Producers planned to retain more open females than expected. While 89% planned to sell open livestock, 11% planned to retain their open females.

As for the 2012 calf crop, there was a mixture of things producers planned on implementing. Ten percent sold the 2012 calves off the cow, 50% backgrounded and sold the calves, and 39% retained ownership and fed their calves (Figure 7). The remaining 18% reported “other.”

Drought has the potential to impact the financial position of cow-calf operations in various ways, depending upon how the operation is managed. Feed prices go up which can reduce equity. Heat associated with a drought year may cause reproductive issues which can lead to loss of income in the following calving seasons. This survey asked producers how drought impacted them financially. The majority, 66%, of operations indicated that drought had little impact on their financial position (Figure 8). These producers likely had a sufficient feed supply of homegrown feed and would not have had to purchase high-priced feeds.

Approximately 25% responded that their financial position would be poorer. Ten percent indicated they would need to borrow operating capital. To cope with decreased income and increased expenses, some producers reported they would sell part of their cows, sell the 2012 calves, and/or sell the 2012 replacement heifers.

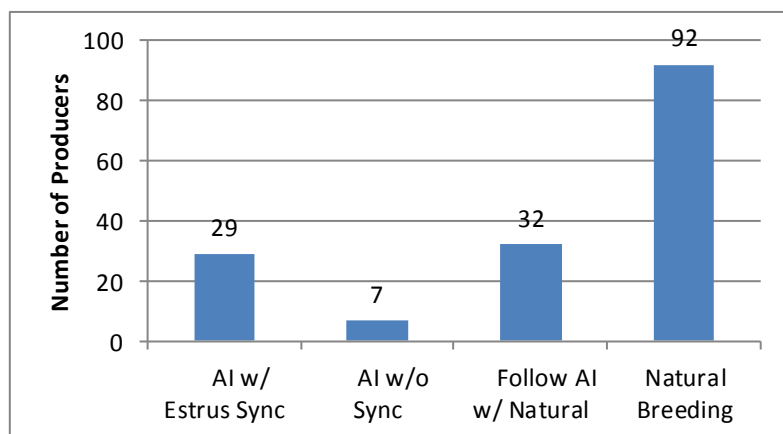


Figure 5. Breeding protocol.

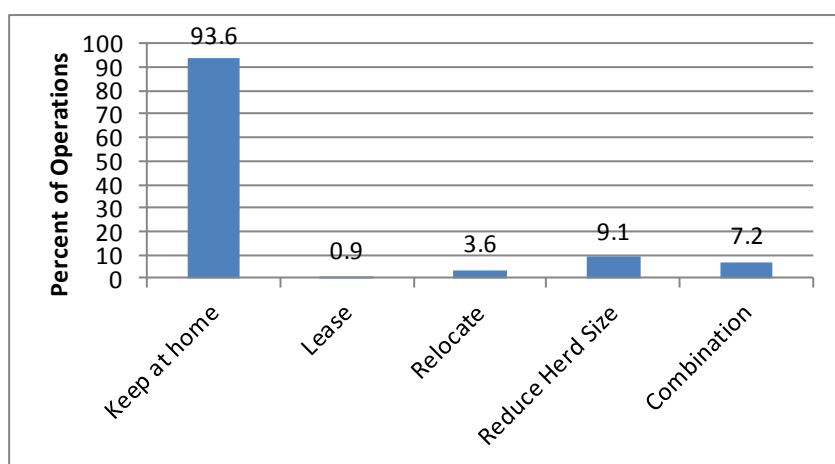


Figure 6. Plan for 2012 bred females.

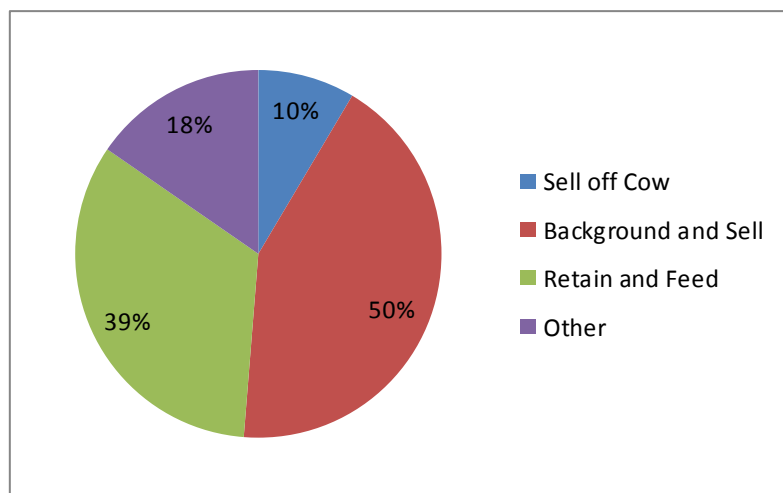
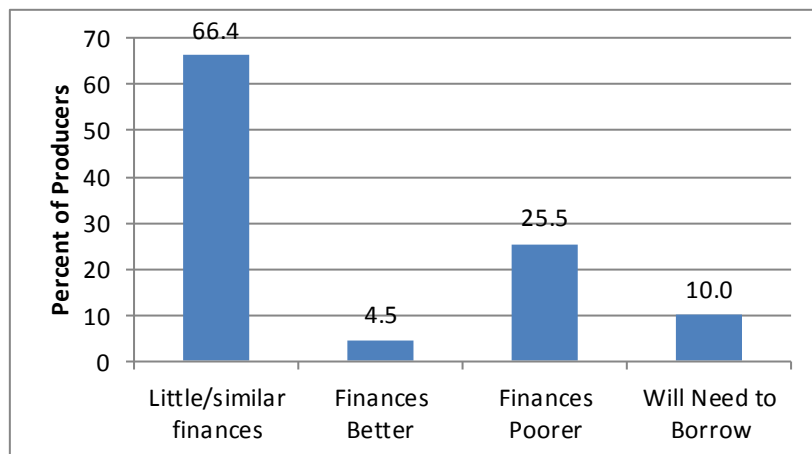


Figure 7. Plan for 2012 calves.



**Figure 8. Financial impact.**

Surprisingly, a few producers indicated that their financial position was stronger in 2012 compared to 2011. Drought did not affect some regions of northwest Iowa quite as much. Perhaps these producers sold extra feed for additional income. Feed prices during a drought are higher-priced compared to normal growing conditions. The aftermath of a drought has the potential to linger into the consecutive year.

Producers were asked two questions regarding their future plans in response to the 2012 drought: 1) What are your plans for the 2013 season? 2) What will you do with your cows and your calves?

Their responses for the cowherd are shown in Table 2. Over 1/3 of the producers planned to stretch pastures with supplemental feeding, relocating cows out-of-state, drylotting or early weaning the calves. Aside from purchasing feed, supplemental feed measures included increasing the acres of hay ground, irrigating pastures and hayfields, planting alternative forages, harvesting CRP acres, cutting more corn silage, planting and grazing oats in the fall and putting up winter rye in the spring.

**Table 2. Future Plans for the 2013 cowherd.**

Practices for Cowherd	Percent of Producers
Pasture & supplemental feed, if necessary	24.5
Relocate cows to another state	2.7
Drylot the herd	2.7
Early wean calves	4.5
Decrease number of:	
Females (not specified)	5.5
Cows	7.3
Old cows	5.5
Open cows	2.7
Late calvers	1.8
Pairs	1.8
Heifers	2.7
Total dispersal	1.8
Increase number of:	
Females (not specified)	7.3
Replacements	9.1

Over 27% of the producers planned to decrease the cowherd if pastures were short. An additional 1.8% were considering total dispersal. However, over 16% of the producers were planning to expand their herds.

The plans for the calf crop are shown in Table 3. Slightly less than 25% of the producers planned to sell the 2013 calves; whereas, 10% planned to keep them and either background or feed them out. Almost 11% of the producers planned to retain their heifer calves.

**Table 3. Future plan for the 2013 calf crop.**

<b>Practices for Calves</b>	<b>Percent of Producers</b>
Sell off of the cow	4.5
Sell calves sometime	9.1
Background	0.9
Background and sell	10.9
Background and feed out	0.9
Feed out	8.2
Retain heifer calves	10.9

Producers consistently indicated that rain, availability of feeds, and price of feedstuff would dictate whether they kept or sold calves and cows.

### **Acknowledgements**

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